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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/630,955	07/30/2003	Ankur Varma	MS1-1485US	1789

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EXAMINER	
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ART UNIT	PAPER NUMBER
2621	

MAIL DATE	DELIVERY MODE
03/16/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/630,955	VARMA, ANKUR	
	Examiner	Art Unit	
	Tung Vo	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *03* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 February 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *23 and 25-29* is/are pending in the application.

4a) Of the above claim(s) *1-22,24 and 30-62* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *23, 25-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 July 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 02/13/2009 has been entered.

Election/Restrictions

2. Newly submitted claims 52-62 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: Claims 52-57 are directed to species VI, figure 6; and claims 58-62 are directed to species IV, figure 4 as set forth in the restriction and/or election requirement on 01/11/2008.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 52-62 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claim 23 and 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mancuso et al. (US 6,600,839) in view of Ishikawa (US 6,330,075).

Re claim 23, Mancuso teaches a noise reduction engine (fig. 1), comprising:

a buffer for storing pixel values (102 of fig. 1, see also fig. 2);

a matrix selector (104 of fig. 1, figs. 3-5) for selecting dimensions of matrices (fig. 3) for arranging the pixel values to represent regions of prediction error an image residue (encoded image as encoded macroblock; col. 1, lines 61-63); and

a diffusion engine (110 of fig. 1, figs 6-11) for reducing the magnitude of at least some of the pixel values (604 of fig. 7, Min, 718 of fig. 7; see also fig. 10) and for reducing variability in the difference between adjacent pixel values in a subject matrix by diffusing magnitudes of pixel values into each other (702, 706L, and 706R of fig. 7, fig. 10),

to thereby reduce noise associated with application of a frequency domain transform and application of an inverse frequency domain transform (104 of fig. 1, note use Sobel-like operators to compensate for the enhanced noise caused by taking derivatives of the pixels, figs. 4 and 5, the local metric is the high-frequency content of the neighboring pixels surrounding the X0 pixel depicted in FIG. 4 and FIG. 5.)

an anchor value selector (114 and 608 of fig. 6, 705L and 705R of fig. 7; retrieving pixels) associated with the diffusion engine (e.g. 110 of fig.6) to select one of the pixel values in a given matrix as an anchor (114 of fig. 6) value after application of the frequency domain transform to the diffused pixel values and application of the inverse frequency domain transform to recover the diffused pixel values (note the first neighboring pixel selected from among the

plurality of neighboring pixels being positioned on a first side of the block boundary, figs. 4 and 5)

It is noted that Mancuso does not particularly teach apply a reverse diffusion function to restore the magnitude of the at least some of the pixel values as claimed.

However, Ishikawa teaches to apply a reverse diffusion function (28 and 36 of fig. 4) to restore the magnitude of the at least some of the pixel values (20 and 33 of fig. 4, note The total of the diffusion coefficients of the diffusion processor 20 does not exceed "1", and the diffused error outputted by the diffusion processor 20 is constituted by eight bits representing 0.about.255, as to restore the magnitude of the at least some of the pixel values).

Taking the teachings of Mancuso and Ishikawa as whole, it would have been obvious to one of ordinary skill in the art of modify the reverse diffusion function of Ishikawa into the diffusion engine of Mancuso (110 of fig. 6) for an improvement is obtained in phase distortion due to error diffusion.

Re claim 25, Mancuso further teaches further comprising an entropy calculator (706R and 706L, and 707 of fig. 7) associated with the anchor value selector to select an anchor value based on an entropy value of one or more of the pixel values.

Re claim 26, Mancuso further teaches a scan pattern engine to apply the reversible diffusion function to a matrix of pixel values in an order (602 of fig. 6).

Re claim 27, Mancuso further teaches an iteration manager (114 of fig. 1) to control an amount of diffusion to be applied to a matrix of pixel values by controlling a number of times that the reversible diffusion function is applied.

Re claim 28, Mancuso further teaches a store of reversible diffusion functions (102 of fig. 1, storing encoded inter or intra macroblock) suitable for different image residues.

Re claim 29, Mancuso further teaches a reverse diffusion module to apply reverse diffusion using an anchor value (710 of fig. 7).

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung Vo whose telephone number is 571-272-7340. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tung Vo/
Primary Examiner, Art Unit 2621